



Climate change, health and environment: a regional framework for action, 2023–2029

Executive summary

Climate change is the greatest health challenge of the 21st century. The mean temperature is increasing rapidly and other climatic variables are worsening; in the Eastern Mediterranean Region in 2022, the increase reached the alarming level of 1.84 °C above the pre-industrial average. There is a 98% likelihood that the next five years will be the warmest on record. Although the Region emits only 8.25% of the world's greenhouse gases, its temperatures and other climatic hazards are changing twice as fast as in the rest of the world. Climatic hazards are fuelling environmental degradation, natural disasters, weather extremes, food and water insecurity, economic disruption and conflicts.

The consequences for health are substantial and include more deadly extreme weather events, increasing cases of noncommunicable diseases and increased emergence and spread of infectious diseases. This is already impacting the Region's health workforce and infrastructure, reducing capacity to achieve universal health coverage. The 2022 floods in Pakistan, for example, caused significant damage to health infrastructure and their impact on the social and environmental determinants of health is estimated to be US\$ 31 billion when calculated in financial terms. While climate change affects everyone, those who have contributed the least to causing the crisis – people living in poverty, children and future generations – are the most affected.

By the end of this century, the worst-case scenario forecast for the Region is that mean temperature will increase by 4.3–6.1 °C, 50–95% of the days of the year will be hot, there will be more days with heavy rain causing flash floods, sea level will rise by 0.1–0.6 metres, there will be more drought events, water scarcity will intensify and extreme weather conditions will increase. Anticipated health impacts include increases in water-, food- and vector-borne diseases, an increase in injuries resulting from extreme weather conditions, malnutrition, loss of biodiversity, an increase in the health impacts of air pollution, an increase in mental health problems and an increase in the movement of people from their home countries and cities.

Deep, rapid and sustained mitigation and an accelerated implementation of adaptation actions would reduce projected losses and damages for humans and ecosystems, and deliver many co-benefits, especially for air quality and health in the Region. Further delay in actions will increase the risks of climate change, undermine decades of improvements in public health and contravene our collective commitments to the Sustainable Development Goals and the human right to health for all.

WHO's mandate to minimize the health impacts of climate change has been evolving since 2008. The most recent key initiatives have included implementation of the regional framework for action on climate change and health 2017–2021 and the ongoing COP26 Health Programme. Implementation of the 2017–2021 framework faced several challenges, including the COVID-19 pandemic and other protracted emergencies, lack of resources and siloed decision-making on climate change and health. However, there was success in developing capacities, evidence and detailed profiles in more than half of the countries of the Region. By 2023, 12 countries in the Region had adopted the COP26 Health Programme for building climate-change-resilient and environmentally-sustainable health systems and facilities.

In order to fully achieve the agenda of the 2017–2021 regional framework for action and meet the demands of the ambitious climate change and health programme, WHO proposes a new framework for action in the Region with five objectives:

- to build climate-resilient and environmentally-sustainable health systems
- to prioritize health in climate-change policies
- to engage the health sector effectively to support climate action by other sectors
- to improve the health sector's access to climate-change funding
- to build a robust evidence base for policy-making.

Achieving the objectives of the proposed framework for action will require multisector transformative action across society. However, the health community – including frontline health workers, ministries of health, intergovernmental and nongovernmental health organizations, and health academics – has a unique role to play. This includes: (1) working within formal health systems; (2) collaborating with health-determining sectors, such as energy, food, agriculture, water, transport, social affairs, security and finance; and (3) engaging with the wider community and civil society, including nongovernmental organizations and youth groups, to make a critical contribution to adapting and combating climate change and accelerating progress towards health for all.

WHO will support and collaborate with the countries of the Region to implement the framework for action in line with the needs of each individual country. WHO will also coordinate contributions from all related UN, international and regional partners towards the implementation of the framework, including through the Regional Health Alliance.

Member States are invited to endorse the proposed framework for action and designate and empower national focal points for its implementation in close collaboration with all related stakeholders at the national level.

Introduction

1. Climate change is the greatest global health challenge of the 21st century. The WHO Eastern Mediterranean Region is particularly vulnerable to climate change. It is more susceptible than other parts of the world owing to a combination of geographical, socioeconomic, demographic and sociopolitical factors (1). The World Meteorological Organization (WMO) and the Intergovernmental Panel on Climate Change (IPCC) reported that the mean temperature of the globe is increasing continuously. In 2022, the increase reached 1.15 °C above the pre-industrial average (2,3). Warming will soon exceed the 1.5 °C limit set in the Paris Agreement under the United Nations Framework Convention on Climate Change,¹ and current trends are likely to result in over 3 °C of warming by the end of the century. There is a 98% likelihood that 2023–2027 will be the warmest years five-year period on record (2). Countries of the Region produced 27.4% and consumed 7.2% of the global oil and gas produced in 2021 (4). It is worth mentioning that, although the countries of the Region emitted only 8.25% of world greenhouse gas (GHG) emissions in 2021 (5), temperature and climatic hazards in the Region are changing almost twice as fast as in the rest of the world, and the annual average temperature in the Region has already increased by 1.84 °C (6).

2. In addition to the projected changes in mean climate conditions and the consequent loss of biodiversity, extreme weather events with potentially disruptive societal impacts will increase. These include heatwaves of strongly increasing severity and duration, droughts, flash floods, sea level rises, wildfires and dust storms. The Sixth Assessment Report of the IPCC projects that the current trend of these changes will drive the displacement of people, adversely affect human health and increase mortality and morbidity, especially among vulnerable populations (the poor, women, children, workers, refugees and the elderly) in the Region (3).

3. The future health impacts of climate change are well understood but difficult to quantify because of the complex interplay between climatic and non-climatic drivers and the effects of climate change adaptation on health. Each of the direct climate-change effects can multiply the number of people hospitalized every year and together place an even greater demand on already-stressed health services and the health workforce. A significant increase in ill health and premature death from climate-sensitive diseases and conditions is projected. Between 2030 and 2050, climate change is expected to cause approximately 250 000 additional deaths per year from malnutrition, malaria, cholera and other diarrhoeal diseases and heat stress worldwide, including 30 000 in the Region (7). The number of deaths attributable to climate change is estimated to range between 0.02 and 7.8 additional deaths per 100 000 population according to country income level, as shown in Fig. 1. The death toll in the low- and middle-income countries in the Region is nearly double the global average.

4. Recent examples of health impacts in the Region provide evidence that the burden could be higher than current WHO estimates. One example is the 2022 record-breaking flooding in Pakistan, which killed more than 1700 people, injured 12 000 and destroyed 2000 health care facilities, leaving more than 8 million people in urgent need of health assistance (8). The partial economic cost of the loss and damage to the health sector was estimated to be US\$ 187 million (a figure that includes the reconstruction of health infrastructure and the resumption of health services and mobile clinics), while the overall cost of impacts on the social and environmental determinants of health was estimated to be more than US\$ 31 billion (9). Other examples include a 37% increase in heat-related deaths attributable to climate change in some parts of the Region (10) and cholera outbreaks induced by population movement exacerbated by conflict, droughts and flooding caused by climate change (WHO, unpublished data, 2023).

¹ The Paris Agreement under the United Nations Framework Convention on Climate Change is a legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris on 12 December 2015. Its overarching goal is to hold “the increase in the global average temperature to well below 2 °C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5 °C above pre-industrial levels”. Each Party to the Agreement is required to establish a climate action plan to cut emissions and adapt to climate impacts, and to update it every five years.

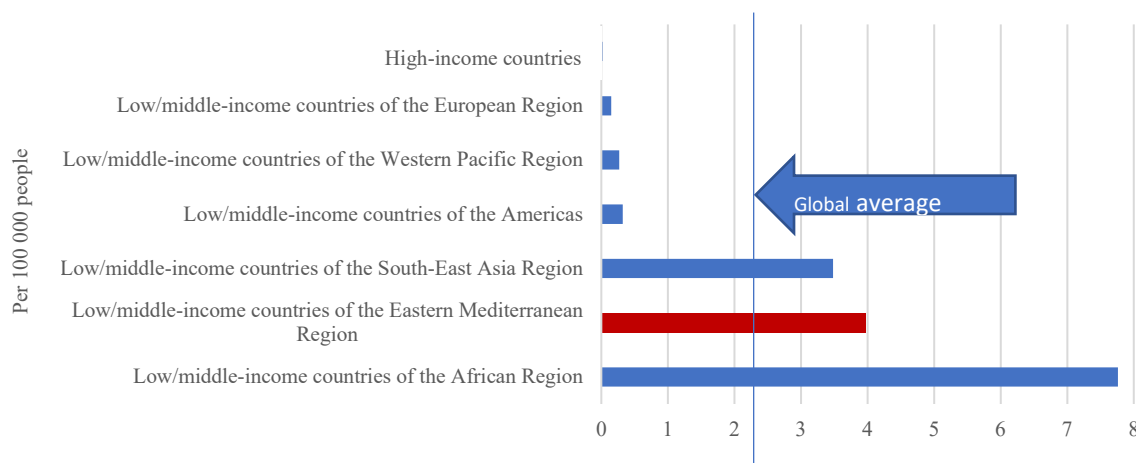


Fig. 1. Number of additional deaths attributable to climate change per 100 000 people in selected country groupings by WHO region¹

5. Climate change also has a significant impact on the social and economic determinants of health. The World Bank estimates that the climate crisis has the power to push more than 100 million people into poverty over the next decade (11). UNHCR, the UN Refugee Agency, estimates that 1.2 billion people could be displaced globally by 2050 due to climate change and natural disasters. Although estimates for the Region do not yet exist, the increasing extreme weather events and disasters in the Region suggest that a similar level of displacement is to be expected.

Climatic risks forecast and projected health impacts in the Region

6. Research and information on the effects of climate change on health and its determinants in the Region is limited and more work is needed (12,13). However, the global impacts of climate change on health are well-documented and estimates of these can be applied to the Region, keeping in mind that impacts are higher there. Globally, changing climatic conditions are increasing the risk of heat-related illnesses, changing the pattern of infectious disease transmission, increasing health risks from extreme events, putting sanitation at risk and having multidimensional impacts on food and water security. These impacts often occur simultaneously, exacerbating the pressure on health and health-supporting systems, and potentially triggering cascading impacts on the social and natural systems on which good health depends (14). The impacts of climate change on human health are expected to vary according to geographical location, socioeconomic conditions and ecological settings, and are mediated through natural and human systems, including economic and social conditions (and disruptions).

7. The occurrence of climate-related foodborne and waterborne diseases is increasing, as is the incidence of vector-borne diseases. Animal and human diseases, including zoonoses, are emerging in new areas. Increased water and foodborne disease risks are arising regionally from climate-sensitive aquatic pathogens, including *Vibrio* spp., and from toxic substances produced by harmful freshwater cyanobacteria. Although diarrhoeal diseases have decreased globally, higher temperatures, increased rain and flooding have increased the occurrence of diarrhoeal diseases in the Region, including cholera and other gastrointestinal infections. Increased exposure to wildfire smoke, atmospheric dust and aeroallergens have been associated with climate-sensitive cardiovascular and respiratory distress. Mental health challenges are also associated with increasing temperatures, including trauma from weather and climate extreme events, and loss of livelihoods and culture. Furthermore, health services have been disrupted by extreme events such as floods (3).

¹ Based on data extracted from the WHO Global Health Observatory in April 2023 (<https://www.who.int/data/gho/data/indicators/indicator-details/GHO/climate-change-attributable-deaths-per-100000-capita>).

8. Some climatic changes in the Region are forecasted to be larger than in other parts of the world. Global and regional models corroborate that the rise in temperature will continue to be faster than the global rates (6). For example, for every 1 °C of global warming, parts of the Region will experience a robust regional warming of 1.4–1.8 °C, which means that mean average temperature in the Region will increase by 1.84 °C. This increase in temperature will be accompanied by a 4% decrease in precipitation per 1 °C of global warming and a 5% increase in relative humidity. This increase will further augment heat discomfort and thermal stress, cause a mean sea level rise of 0.1–0.6 metres, increase the severity, duration and impact of drought events and increase extreme precipitation by 6–7% per 1 °C of global warming.

9. WHO has developed 12 detailed climate change and health profiles in collaboration with national governments of the Region. The profiles summarize evidence for the climate hazards and health impacts that countries will face towards the end of the 21st century. Annex 1 presents the main predictions of the profiles. In summary, by the end of the century mean average temperature will increase by 4.3–6.1 °C, 49–95% of the days of the year will be hot, there will be more days with heavy rain causing flash floods, there will be more drought events, water scarcity will intensify and incidences of extreme weather conditions will increase. Some of the health impacts of these changes have been quantified, such as the increase in heat-related deaths among the elderly in the Region. However, due to a lack of empirical evidence on exposure–response functions involving climate change and specific health outcomes (13), other health impacts have been described but not quantified, including the increase in water-, food- and vector-borne diseases, injuries resulting from extreme weather conditions, malnutrition, the health impacts of air pollution and malnutrition, and mental health problems.

10. As mentioned above, some population groups are more vulnerable to the health impacts of climate change than others. The poor are more vulnerable because of their high dependence on natural resources and their limited capacity to cope with climate variability and extremes; and it has been reported that 70% of recent peer-reviewed studies found that women are more affected by health impacts associated with climate change than men (15). Although older people are a diverse group, many are disproportionately affected by climate change because of their greater physiological susceptibility, pre-existing health conditions, disability and social vulnerability, particularly when they live alone or in poor urban areas and are less capable of responding (16). Children are more vulnerable to climate and environmental shocks than adults for a number of reasons, including physical and physiological vulnerability, and have an increased risk of death. The Children’s Climate Risk Index is extremely high in Afghanistan, Pakistan, Somalia, Sudan and Yemen (17).

11. The same development pathways and economic choices that are driving these climate changes are also directly causing large health impacts. These include polluting energy systems that are the main cause of over 567 000¹ premature deaths from air pollution each year in the Region; environmentally destructive and unhealthy food systems that contribute to the global increase in noncommunicable diseases; and urban planning and transport systems that result in car dependency, contributing to the burdens of physical inactivity and road traffic injuries. The health care sector itself is now also a significant contributor to climate change, responsible for almost 5% of global carbon emissions (18).

WHO’s evolving mandate and the need for a new climate change and health framework for action

12. In 2008, the Sixty-first World Health Assembly endorsed resolution WHA61.19 and the WHO Regional Committee for the Eastern Mediterranean adopted resolution EM/RC55/R.8, establishing a mandate for work on climate change and health by WHO and Member States at both global and regional levels. Since then, the climate change and health programme has evolved to meet the needs of countries of the Region, guided by several regional and national processes, including a framework for health sector action to protect health from climate change 2008–2013; a regional workplan on climate change and health 2014–2019; the regional framework for action on climate change and health 2017–2021; the WHO

¹ Based on data extracted from the WHO Global Health Observatory in April 2023.

Thirteenth General Programme of Work (GPW 13); the regional Vision 2023: Health for all by all; and the COP26 Health Programme. WHO's programme on climate change and health has developed over the last 30 years to provide comprehensive policy and technical support to promote health-enhancing climate-change adaptation and mitigation efforts, accelerate the transition to resilient, low-carbon health systems and protect health from climate risks.

13. The WHO climate change and health programme supports the implementation of the Paris Agreement, addressing the reference in the agreement that Parties should take account of the “right to health” in implementing all actions on climate change, and the recognition of the “co-benefits for adaptation, health and sustainable development” of actions to cut GHG emissions. It also responds to the mandate of the Sustainable Development Goals (SDGs), including SDG 13 on climate action, which has a direct connection to SDG 3 on health, SDG 2 on nutrition, SDG 6 on water and sanitation and SDG 7 on energy, including air pollution, among others.

14. The implementation of the 2017–2021 regional framework faced several challenges, including the COVID-19 pandemic and other protracted emergencies, a lack of human and financial resources and siloed decision-making on climate change and health. However, more than half of the countries and territories of the Region have developed evidence on the health impacts of climate change and the expertise and experience needed to respond to it, while others are still learning. National profiles on climate change and health were developed for 12 countries and territories and are currently being developed in four more. The rate of implementation of the framework for action in seven¹ countries in the Region in 2021 is summarized in Fig. 2 (19).

15. A 2021 global WHO survey on climate change and health concluded that the Region (based on responses from nine countries and territories) is not yet responding to the scale of the climate crisis. Climate and health policy-making remain siloed (20). Although the right to health is at the core of the UN Framework Convention on Climate Change (UNFCCC)² and the Paris Agreement, it is largely absent from its operational mechanisms. For example, less than 0.5% of international climate finance is currently allocated to health projects. Similarly, while health is routinely identified as a top priority for climate action, 70% of countries lack finance to implement a national adaptation plan for health.

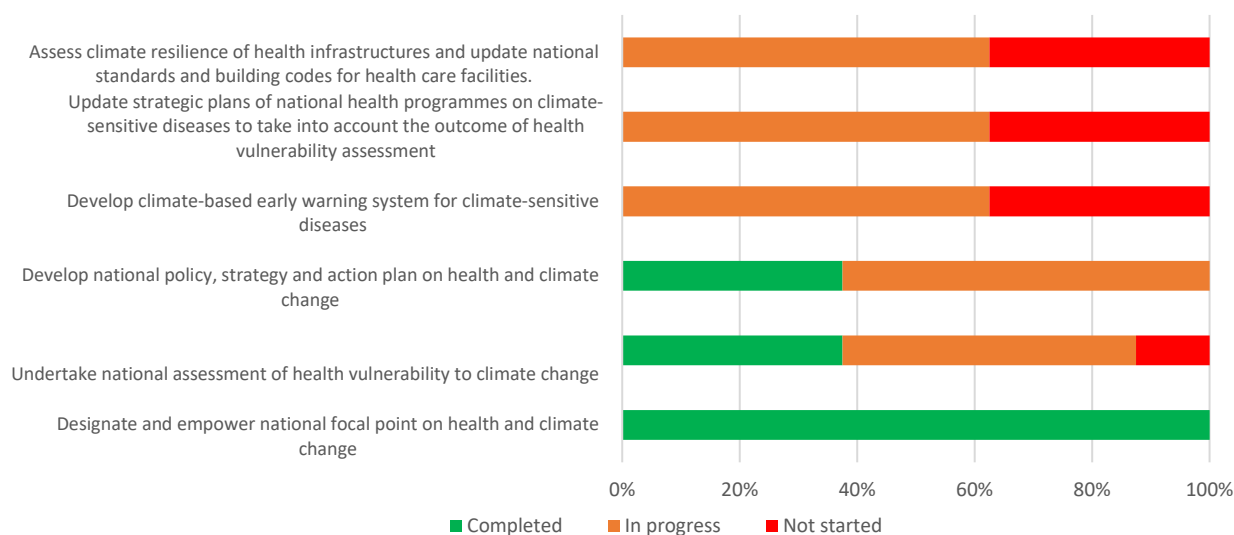


Fig. 2. Status of implementation of priority actions of the regional framework for action on climate change and health (2017–2021) in seven countries of the Eastern Mediterranean Region (2021)

¹ Countries that responded to the survey: Egypt, Iran (Islamic Republic of), Jordan, Morocco, Oman, Pakistan and Tunisia.

² UNFCCC is an international environmental treaty to combat dangerous human interference with the climate system. It has a supreme decision-making body, the Conference of the Parties (COP), that meets annually to assess progress in dealing with climate change.

16. Many countries of the world (including several in the Region), responded to the COVID-19 pandemic by restricting travel and other activities in 2020 and 2021. This caused a temporary reduction in global GHG emissions and local air pollution. Despite having very little initial effect on climate, on longer timescales over many years, decreased carbon dioxide emissions will cause a cooling effect. If we can continue to reduce our emissions, then we still have a chance of limiting the level of future warming and the severity of future climate change impacts.

17. Nationally determined contributions (NDCs) are country commitments to deliver the goal of the Paris Agreement. In 2023, 58 countries of the world submitted their NDCs. As reported by the Global Climate and Health Alliance, climate and health policy-making are still isolated from each other. Health is absent from the NDCs of 7 countries and territories of the Region, while it features in 13–87% of commitments in the other 15 countries and territories of the Region (Fig. 3).

18. In 2021, WHO and the United Kingdom (UK) launched the COP26 Health Programme to build climate-resilient and environmentally-sustainable health systems and facilities,¹ which was later adopted by 13 countries and territories in the Region (Table 1). In 2022, an Alliance for Transformative Action on Climate and Health (ATACH) under the co-leadership of Egypt and the UK was established by WHO to help committed countries in building climate-change-resilient and sustainable health systems and facilities.² In 2023, the United Arab Emirates joined the co-leadership of ATACH and will make use of the opportunity of hosting COP28 in the same year to highlight the links between climate change and health and to push for real action that mitigates the risks that arise from these links. Efforts are continuing to expand the coverage of ATACH and thereby its benefits to all the 22 countries and territories of the Region.

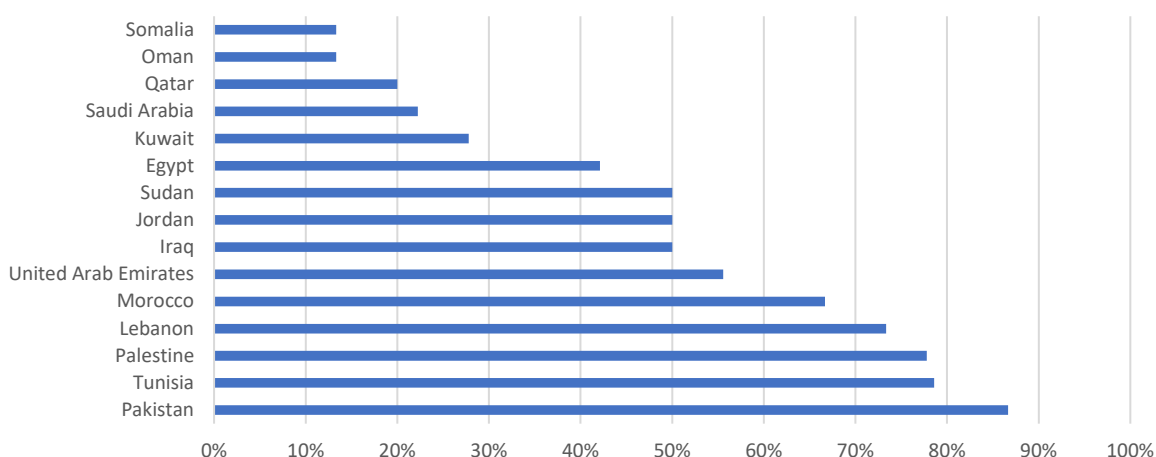


Fig. 3. Percentage of national climate commitments focusing on protecting health in the Eastern Mediterranean Region³

¹ The COP26 Health Programme has been established to bring stronger health focus and ambition to COP26 by focusing on two key health priorities: building climate-resilient health systems and developing low-carbon sustainable health systems.

² The health system is recognized by WHO to be made up of six key building blocks: (i) leadership and governance; (ii) health workforce; (iii) health information systems; (iv) essential medical products and technologies; and (v) financing; all of which lead to (vi) service delivery. Climate-resilient health systems have the ability to anticipate, respond to, cope with, recover from and adapt to climate-related shocks and stresses, so as to bring sustained improvements in population health, despite an unstable climate.

³ Data extracted from the Healthy NDC Scorecard published in May 2023.

Table 1. Countries in the Region committed to the COP26 Health Programme

Country	Committed to build climate-resilient health system	Committed to build low-carbon health system	Net Zero target date
Bahrain	Yes	Yes	No commitment
Egypt	Yes	No	No commitment
Iran (Islamic Republic of)	Yes	Yes	No commitment
Jordan	Yes	Yes	2050
Kuwait	Yes	—	No commitment
Lebanon	Yes	Yes	No commitment
Morocco	Yes	Yes	2050
Oman	Yes	Yes	No commitment
Pakistan	Yes	Yes	No commitment
Palestine	Yes	Yes	No commitment
Tunisia	Yes	No	No commitment
United Arab Emirates	Yes	Yes	No commitment
Yemen	Yes	Yes	2050

19. These increasing needs and demands make clear the necessity for a new framework for action for WHO and countries and territories of the Region for the coming four years. The new framework for action should complete the unfinished agenda of the 2017–2021 framework for action and add additional targets to help the countries of the Region in the implementation of the developing WHO COP26 Health Programme following the guidance of COP27 and COP28. This framework will build on existing global and regional strategies and initiatives such as the regional agenda for building resilient health systems towards universal health coverage and health security,¹ the regional One Health joint plan of action (2022–2026),² health in all policies, the SDGs³ and the regional roadmap on building resilient communities for better health and well-being in the Region⁴. The implementation of this framework for action will require stronger partnerships with UN and other international partners.

Proposed framework for action 2023–2029

20. The main objectives of the framework are to:

- build climate-resilient and environmentally-sustainable health systems
- prioritize health in climate-change policies
- engage the health sector effectively to support climate action by other sectors
- improve the health sector's access to climate-change funding
- build a robust evidence base for policy-making.

21. In order to meet the objectives of the proposed framework for action, three main regional approaches are recommended: (1) protecting health from the wide range of impacts of climate change; (2) building better, more resilient and environmentally-sustainable health systems; and (3) promoting actions that both reduce carbon emissions and improve health.

22. Achieving the objectives of the proposed framework for action will require multisector transformative action across society. However, the health community – including frontline health

¹ Resolution EM/RC69/R.2 on Building resilient health systems to advance universal health coverage and ensure health security in the Eastern Mediterranean Region (2022).

² Resolution EM/RC69/R.5 on Advancing the implementation of One Health in the Eastern Mediterranean Region (2022).

³ Resolution EM/RC69/R.4 on Promoting health and well-being in the Eastern Mediterranean Region: moving from theory to action to achieve the health-related Sustainable Development Goals (2022).

⁴ Resolution EM/RC68/R4 on Building resilient communities for better health and well-being in the Eastern Mediterranean Region (2021).

workers, ministries of health, intergovernmental and nongovernmental health organizations, and health academics – has a unique role to play. This includes: (1) working within formal health systems; (2) collaborating with health-determining sectors, such as energy, food, agriculture, water, transport, social affairs, security and finance; and (3) engaging with the wider community and civil society, including nongovernmental organizations and youth groups.

23. Investing in climate-resilient and environmentally-sustainable health systems, deploying renewable energy and other innovations can help to deliver primary health care that is fit for the 21st century. Strengthening the global health response to climate change, through enhanced surveillance systems and mainstreaming climate risks and responses into health programmes, would protect lives and minimize loss and damage to human health.

24. Deep, rapid, and sustained mitigation and accelerated implementation of adaptive actions would reduce projected losses and damages for humans and ecosystems, and deliver many co-benefits, especially for air quality and health in the Region (3). For example, certain climate-change interventions in Pakistan would result in a reduction of GHG emissions of approximately 27.5% by 2030. These GHG emissions reductions would significantly improve air quality, which could prevent more than 65 000 deaths annually from ambient air pollution in 2030 (21). A reduction of the annual mean fine particulate matter (PM_{2.5}) exposure levels to the WHO recommended levels would be associated with a decrease in GHG emissions and a decrease of all natural-cause mortality in adults over 30 by at least 16.9% in various countries in the Region (22).

25. Annex 2 includes the details of the suggested framework for action, including the current status and needed changes to address regional needs, and the recommended strategic actions for countries for 2023–2029.

WHO's contribution to the framework for action

26. WHO will support and collaborate with the countries of the Region to implement this framework for action in line with the needs of each individual country. WHO support will be provided in the areas of leadership and raising awareness; evidence and monitoring; and capacity-building and country support. WHO will coordinate contributions from all related UN, international and regional partners towards the implementation of the framework, including through the Regional Health Alliance (23). Table A2.3 summarizes WHO's contribution towards achieving the framework's objectives.

Monitoring and evaluation

27. While implementing the proposed regional framework for action, it will be essential to monitor and evaluate progress in the achievement of the planned deliverables and products. This will help to identify and build on the lessons learned during the framework's implementation. Table A2.4 provides a list of indicators to be used in the monitoring and evaluating the implementation of the framework.

Conclusion

28. As the climate crisis intensifies, so do its diverse impacts on public health. It threatens the essential ingredients of good health – clean air, safe drinking-water, a nutritious food supply, and safe homes and workplaces. Climate change is the single biggest threat to global health, and health professionals in the Region are already responding to the health harms caused by this unfolding crisis. Delay in action on climate and health will undermine decades of progress in public health.

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Annex 1. Projected climate risks and quantified health impacts in selected countries/territories of the Eastern Mediterranean Region

Country/territory (source)	Date of profile	Projected climate risks by 2100 using worst-case scenario				Quantified health impacts: heat-related deaths among the elderly
		Heat	Floods/sea level rise	Total precipitation	Drought events	
Egypt	2016	5.6 °C increase in annual mean temperature	2.4 million people will be affected by flooding due to sea level rise	–	Increase	Increase from 1 to 47 per 100 000
Iran, Islamic Republic of	2022	5.4 °C increase in annual mean temperature 70% of days will be hot	10% increase in extreme rainfall	–	Increase	Increase from 6 to 69 per 100 000
Iraq	2021	5.4 °C increase in annual mean temperature 70% of days will be hot	10% increase in extreme rainfall	10% decrease	Increase	Increase from 4 to 64 per 100 000
Jordan	2016	5.9 °C increase in annual mean temperature 55% of days will be hot	Number of days with heavy precipitation will double	Decrease	Increase	Increase from 3 to 54 per 100 000
Kuwait	2016	5.9 °C increase in annual mean temperature 72% of days will be hot	594 500 people will be affected by flooding due to sea level rise	Decrease	Increase	Increase from 3 to 51 per 100 000
Lebanon	2021	4.3 °C increase in annual mean temperature 65% of days will be hot	3% increase in extreme rainfall	25% decrease	Increase	Increase from 2 to 48 per 100 000
Morocco	2016	5.5 °C increase in annual mean temperature 58% of days will be hot	187 400 people will be affected by flooding due to sea level rise	Decrease	Increase	Increase from 5 to 50 per 100 000
Oman	2016	5.0 °C increase in annual mean temperature 77% of days will be hot	81 300 people will be affected by flooding due to sea level rise	Decrease	Increase	Increase from 3 to 34 per 100 000.
Pakistan		6.1 °C increase in annual mean temperature 95 % of days will be hot	1 207 700 people will be affected by flooding due to sea level rise.	Decrease	Increase	Increase from 10 to 63 per 100 000
Palestine	2022	4.3 °C increase in annual mean temperature 60% of days will be hot	Slight increase in extreme rainfall	30% decrease	Increase	Increase from 2 to 50 per 100 000
Tunisia	2016	5.3 °C increase in annual mean temperature 49% of days will be hot	78 700 people will be affected by flooding due to sea level rise	Decrease	Increase	Increase from 4 to 56 per 100 000
United Arab Emirates	2019	5.0 °C increase in annual mean temperature 80% of days will be hot	Small increase in extreme rainfall	20% increase	–	Increase from 0 to 15 per 100 000

Source: Health and climate change country profiles [website]. Geneva: World Health Organization; 2023 (<https://www.who.int/teams/environment-climate-change-and-health/climate-change-and-health/evidence-monitoring/country-profiles>, accessed 18 July 2023).

Annex 2. Proposed regional framework for action on climate change and health, 2023–2029

Tables A2.1–A2.4 provide details of the proposed regional framework for action on climate change and health 2023–2029.

Table A2.1. Current status of the climate change and health programme in the Region and the targeted change in 2023–2029

Current status	Priorities for health	WHO's contribution	Targets
Health and climate policy-making are not synchronized	For health professionals to be active negotiators in the United Nations Framework Convention on Climate Change (UNFCCC)-related processes	Provide health leadership on integrating health into the UNFCCC and other relevant negotiations and mechanisms at regional and national levels	Health is prioritized in national and regional climate policies, and vice versa
The health community is weakly engaged in climate action and vice versa	For the health sector to champion a synergistic, effective and equitable approach to health, climate and well-being across society	Convene, guide and mobilize the health community to advocate for actions that protect both health and the climate	The health community is empowered, informed and effectively engaged to support climate action for health protection
The health and climate evidence base is poorly integrated into action and monitoring	Evidence-based health advocacy for a positive future through climate-change mitigation and adaptation and environmental protection	Build or strengthen partnerships with UN, international and regional partners and donors	A robust, relevant evidence base is available and connected directly to policy implementation and monitoring
Climate-change mitigation and adaptation are insufficient and neglect health opportunities	Develop a robust evidence-base and policy-relevant guidance on health effects of mitigation and adaptation actions, monitor their implementation and measure health and climate outcomes	Provide a comprehensive set of evidence summaries, profiles, technical guidance, tools and research priorities; track regional and country progress	Faster climate-change mitigation that maximizes health co-benefits
Health systems are climate vulnerable and have significant carbon emissions	Support health-promoting climate-change mitigation and scale up investment in climate-resilient, low-carbon health systems and facilities and in public health programmes to protect populations from climate-change risks	Provide in-country support to Member States through policy, technical and implementation guidance to scale up investments in climate and health action	Health systems are climate-resilient and low carbon and public health programmes protect populations from climate risks

Table A2.2. Proposed strategic country actions 2023–2029

Strategic direction	Priority actions
Working within formal health systems	<p>Ensure that environmentally sustainable core health services form central components of universal health coverage and primary health care</p> <p>Ensure climate resilience and environmental sustainability as a basic requirement across health systems and facilities</p> <p>Support health systems to move to cost-effective, reliable and cleaner energy solutions</p> <p>Build climate-informed surveillance and response systems linked to climate-sensitive health outcomes</p> <p>Integrate climate risk analysis into key health programmes, including emergency preparedness and response, One Health, infectious disease control, mental health, and programmes focusing on vulnerable groups such as workers, mothers, children and newborns, displaced people and the elderly</p> <p>Mainstream climate resilience and environmental sustainability into health service investments and use multilateral climate opportunities to close the financing gap for health adaptation and resilience</p> <p>Train health workers to integrate climate resilience and environmental sustainability into their core functions</p> <p>Identify climate change and health research gaps and priorities</p>
Collaborating with health-determining sectors, such as environment, climate change, energy, food, agriculture and water systems, transport and urban planning	<p>Conduct climate change and health vulnerability and adaptation assessments (V&As), taking account of gender, equity, socioeconomic and other determinants of health</p> <p>Use the V&As in developing evidence-based health adaptation plans (HNAPs) to climate change; these plans should be aligned with national adaptation plans (NAPs) to climate change</p> <p>Support resilience and adaptation in health-determining sectors, and within communities, such as water and sanitation service provision, urban planning and transport, nutrition and food security programmes, and through community-based health adaptation</p> <p>Compile an evidence-based climate change and health profile</p> <p>Ensure that health is central to climate change mitigation policies, from community to regional levels</p> <p>Identify and accelerate climate change mitigation actions that bring the greatest health gains</p> <p>Monitor, learn and improve as the interaction between climate change, other determinants, health interventions and health effects is constantly evolving</p>
Engaging with the community, to make a critical contribution to adapting and combating climate change and accelerating progress towards health for all	<p>Promote the rapid deployment of existing technologies, which can deliver a healthy energy transformation, while reducing costs, boosting employment and saving lives</p> <p>Mobilize and build the strength of the health community to drive policy change</p> <p>Promote a positive vision of a healthy and green environment for all to build public support</p> <p>Empower young people to drive meaningful, impactful and positive change locally, nationally and regionally</p> <p>Undertake educational and public awareness campaigns on climate change and health to ensure public participation in building climate resilient health systems.</p> <p>Involve youth and community leaders in climate change and health decision-making processes</p>

Table A2.3. Summary of WHO's contribution

Leadership	Evidence and monitoring	Capacity-building and country support
<i>Raising political ambition</i>	<i>Making knowledge accessible</i>	<i>Providing living guidance</i>
<p>Convene and lead to position health as a central, positive contributor to regional and national climate policy</p> <p>Provide guidance and training to empower health personnel to engage in national, regional and international climate processes (NDCs, loss and damage, etc.)</p> <p>(Co)-lead joint UN initiatives on climate, health and well-being</p>	<p>Develop evidence-based climate change and health profiles for use in policy-making</p> <p>Develop evidence summaries on the key climate and health risks, effectiveness of interventions, and health and economic co-benefits of climate action</p> <p>Provide evidence gap analyses and prioritized research agendas, co-developed with stakeholders, and identifying emerging risks described through systematic horizon-scanning</p> <p>Provide guidance on good practice methods for assessing health adaptation interventions and health co-benefits</p>	<p>Develop operational frameworks for building climate-resilient and environmentally-sustainable health systems and facilities</p> <p>Provide guidance and tools for V&As and HNAPs</p> <p>Provide guidance on key climate and health interventions</p>
<i>Mobilizing health voices for climate action</i>		<i>Providing training and skills development</i>
<p>Develop platforms to mobilize health professionals to support ambitious climate and health action</p> <p>Develop and disseminate climate and health messages for key target audiences</p> <p>Design and roll out evidence-based climate and health information campaigns</p>		<p>Develop comprehensive climate and health training courses, such as on climate and health science, policy, access to finance, and implementation</p> <p>Roll out training through in-person and online training-of-trainers courses and integration into health workforce curricula</p>
		<i>Supporting country delivery</i>
		<p>Provide in-country policy, technical and management support for developing and implementing climate and health country programmes</p> <p>Provide advocacy to mobilize countries to accelerate implementation of the framework</p>

Table A2.4. List of indicators

Indicator	Baseline 2023	Target 2027
Number of countries/territories in the Region with an active climate change and health focal point	13	22
Number of countries/territories in the Region committed to building a climate-resilient health system and facilities	13	22
Number of countries/territories in the Region committed to building environmentally-sustainable health facilities with low carbon-footprint	3	10
Number of countries/territories in the Region with climate change and health country profiles that are compiled/updated	12	22
Number of countries/territories in the Region with HNAPs that are compiled and synchronized with NAPs/territories	1	13
Number of countries in the Region with climate-change resilient and environmentally-sustainable health care facilities	1	15
Number of countries/territories reporting to the global climate change and health survey	9	22
Number of countries/territories with health needs communicated through the UNFCCC, NDC processes	2	13
Number of countries/territories in the Region whose health professionals are active members in the UNFCCC negotiations	0	13